residents and business line counts at the wire center level if this data is provided by the ILEC.

NCCTA: The NCCTA concurred with the Public Staff that the Commission should adopt a FLEC study which includes actual access line data for each wire center.

ATTORNEY GENERAL: The Attorney General did not address this issue with specificity in his Brief.

PUBLIC STAFF: The Public Staff recommended that the FLEC study inputs of all of the ILECs should include actual access line data for each wire center. In its Proposed Order, the Public Staff stated that none of the studies initially submitted by the parties were based on the ILEC's actual wire center line counts on file with the Commission. However, the Public Staff stated that Carolina/Central had now provided corrected information in this regard.

DISCUSSION

Public Staff witness Garrison testified that one of the crucial inputs to all of the FLEC studies is the number of access lines for each geographic area. This input goes toward determining the efficiencies that can be gained by serving a specific area as well as the total costs that would be incurred in serving the area. Witness Garrison stated that, ideally, the Commission should require access line inputs to be the actual line counts for the geographic area for which costs are being calculated — whether grid, Census Block, or Census Block Group — but that none of the ILECs to his knowledge maintain access line counts below the wire center level. Thus, the Public Staff recommended that the FLEC study inputs of all of the ILECs should include actual access line data for each wire center. The Public Staff stated, in its Proposed Order, that none of the studies initially submitted by the parties are based on the ILECs' actual wire center line counts on file with the Commission. However, the Public Staff stated that Carolina/Central had now provided corrected information in this regard.

The positions set forth in the Proposed Orders and/or Briefs of BellSouth, Carolina/Central, and NCCTA, as noted above, support the Public Staff's position that actual wire center line counts should be used. BellSouth and Carolina/Central have now made revisions to reflect actual access line data for each wire center based upon recommendations from the Public Staff. However, GTE's inputs need to be revised to reflect actual access line data for each wire center in North Carolina.

CONCLUSIONS

The Public Staff's recommendation would be consistent with FCC Criterion No. 1 which states in part that ". . .[w]ire center line counts should equal actual ILEC wire center

line counts. . . ." The Commission concludes that the Public Staff's recommendation requiring that the FLEC study inputs of all of the ILECs include actual access line data for each wire center is appropriate.

3(d): MATERIAL, INSTALLATION, AND LABOR COSTS / LOADING FACTORS

POSITIONS OF PARTIES

BELLSOUTH: BellSouth used current material prices, labor costs, and contractor costs that are adjusted by Telephone Plant Indices (TPIs) (inflation in certain accounts) to reflect 1997-1999 costs and do not reflect embedded costs.

CAROLINA/CENTRAL: Carolina/Central reflected the cost of cable and material actually used in provisioning cable facilities in the areas served by the Companies in North Carolina. The cost inputs were either derived from accounting records or were based on actual construction activity during 1996.

GTE: GTE reflected the default values of the BCPM 3.0 for material and installation to determine outside plant investment which are based on national average prices net of any discounts. GTE did not address this issue with specificity in its Proposed Order or Brief.

AT&T: AT&T adjusted the labor portion of the installation costs to reflect North Carolina wages, the terrain factors specific to each Census Block Group in North Carolina, and the customer and wire center locations to make them specific to North Carolina. The input values used are not the lowest prices attainable and are not an average of any prices.

MCI: MCI did not address this issue with specificity in its Proposed Order. MCI co-sponsored the HM 5.0 with AT&T.

NCCTA: The NCCTA recommended that the Commission determine whether the BCPM inputs for installation times and labor rates reflect historical experience (i.e., embedded costs) or are indicative of the forward-looking operations of an efficient carrier in a competitive market. The installation times and labor rates assumed in the HM are lower than those used in the BCPM.

ATTORNEY GENERAL: The Attorney General did not address this issue with specificity in his Brief.

PUBLIC STAFF: The Public Staff recommended that the Commission conclude that it is appropriate to require GTE in its FLEC study to use the inputs developed by Carolina/Central for its North Carolina service area instead of the BCPM 3.0 default values

for loop fixed costs, structures (base cost, cost adjustment, and installation cost), and material and installation costs for handholes, manholes, adder, and conduit.

DISCUSSION

According to the Public Staff, in its Proposed Order, default values for material and installation (which GTE applied in its study) are not state specific and do not have a direct relationship to North Carolina service area costs. The Public Staff argued that state specific costs for material and installation costs as developed by both BellSouth and Carolina/Central which are based on the Companies' experience of operating in North Carolina are superior to default values. The Public Staff advocated that one of the main purposes of a state adopting its own FLEC model for submission to the FCC is to ensure that state specific inputs are reflected when possible. In this instant case, evidence was presented by both BellSouth and Carolina/Central of state specific costs for material and installation. The Public Staff maintained that GTE and Carolina/Central have similar aspects such as substantial purchasing power, similar demographic characteristics, and comparable access lines per exchange. Therefore, the Public Staff stated that it is reasonable for the Commission to require GTE to reflect those state specific costs as represented by Carolina/Central for materials and labor in GTE's FLEC study.

GTE asserted in its summary of input differences filed March 10, 1998, that the Company views the default values as a reasonable representation of its costs until such time as it can develop the necessary company-specific inputs for North Carolina.

Carolina/Central stated in their Proposed Order that the cable material prices and construction costs included in the BCPM 3.1 reflect the ILECs' cost of cable and material actually used in provisioning cable facilities in the areas served by those Companies in North Carolina. Carolina/Central stated that the HM national default inputs were developed for nationwide application by a small group of engineers paid by AT&T and MCI. Carolina/Central argued that the national default inputs used in the HM are inferior to the actual costs reflected by the ILECs.

AT&T stated, in its Proposed Order, that BellSouth contacted no outside vendors to solicit price quotes to be used in its model and, therefore, does not know what prices are obtainable in the current market. Additionally, AT&T stated that BellSouth's contractor installation costs do not take into account current market prices for such installation but rather uses "averages" of contracts of varying ages. Concerning material costs, AT&T asserted, in its Proposed Order, that BellSouth's conduit and manhole costs are significantly higher than costs available in the market, with conduit costs also being significantly higher than the BCPM default prices derived from ILEC data.

Material loading factors are applied to material costs in order to determine the installed investment. According to AT&T's Proposed Order, BellSouth's methodology is

to calculate a ratio of these associated expenses to its nonexempt (major) material investments for 1995, and then multiply this ratio by the direct cable material cost. AT&T asserted that the loading factors tremendously inflate BellSouth's material price inputs and are the most insidious contributor to the overstatement of costs reflected in BellSouth's installed material prices. AT&T further stated that the loading factors are based on BellSouth employee work times and exempt material usage recorded in a monopoly environment; therefore, the loading factors are unadjusted for the forward-looking assumptions contained in BellSouth's own cost studies.

Additionally, AT&T witness Wells, in rebuttal testimony, argued that BellSouth's outside plant loadings are not forward looking and instead attempt to recover the costs of BellSouth's past methods of operations. Witness Wells asserted that many of BellSouth's loadings have been developed based on BellSouth's embedded investment and its 1995 costs and investments. Further, witness Wells expressed concern with BellSouth's cost modeling methodology of its loadings. Witness Wells stated that BellSouth applies a material loading factor to the inflated direct material cost for copper and fiber cables in its outside plant Field Reporting Codes (FRC). BellSouth calculates a ratio of these associated expenses to its nonexempt (i.e., major) material investments for the year 1995, and then multiplies this ratio by the direct cable material cost. Witness Wells argued that BellSouth's material loading factors for cable are a large contributor to the total loop investment. Witness Wells recommended that the material factors ratios be reduced to a ratio of 1.5, which is consistent with the HM's assumptions.

The Commission concurs with the recommendation and justification advocated by the Public Staff in its Proposed Order to require GTE to reflect those state specific costs as represented by Carolina/Central for materials and labor in GTE's FLEC study.

CONCLUSIONS

The Commission concludes that North Carolina specific data is the most forward-looking and reasonable and is thus superior to default inputs. Therefore, the Commission orders GTE to reflect Carolina/Central's state specific costs for material and installation costs for loop fixed costs, structures (base cost, cost adjustment, and installation cost), and material and installation costs for handholes, manholes, adder, and conduit in GTE's FLEC study.

3(e): SUPPORT RATIOS

POSITIONS OF PARTIES

BELLSOUTH: BellSouth did not address this issue with specificity in its Proposed Order or Brief. BellSouth supported the BCPM and used BellSouth-specific support investment ratios for input into BCPM using forward-looking projected assets.

CAROLINA/CENTRAL: Carolina/Central did not address this issue with specificity in their Proposed Order or Brief. Carolina/Central support the BCPM and the North Carolina-specific inputs developed for use therein.

GTE: GTE did not address this issue with specificity in its Proposed Order or Brief. GTE supports the BCPM and the North Carolina-specific inputs developed for use therein.

AT&T: AT&T did not address this issue with specificity in its Proposed Order or Brief.

MCI: MCI did not address this issue with specificity in its Proposed Order.

NCCTA: The NCCTA did not address this issue with specificity in its Brief.

ATTORNEY GENERAL: The Attorney General did not address this issue with specificity in his Brief.

PUBLIC STAFF: The record indicates that the support ratios proposed by GTE for the Furniture and Office Support accounts are substantially higher than those proposed by BellSouth and Carolina/Central. The Public Staff recommended that the support ratio inputs into the BCPM 3.1 for the calculation of GTE's Furniture and Office Support investments should be those proposed by Carolina/Central.

DISCUSSION

The BCPM 3.1 does not directly determine the investments associated with the support accounts. Instead, support ratios are calculated separately and then applied to the total plant investment, excluding land and buildings, developed by the BCPM in order to produce an investment level for each of the support plant categories. The record indicates that the support ratios proposed by GTE for the Furniture and Office Support accounts are substantially higher than those proposed by BellSouth and Carolina/Central: more than six times higher for Furniture investment and more than four times higher for Office Support investment. The Public Staff stated, in its Proposed Order, that it could not rationalize such a disparity and therefore recommended that the support ratio inputs into the BCPM 3.1 for the calculation of GTE's Furniture and Office Support investments should be those proposed by Carolina/Central. The following table shows the ILEC's support ratios proposed for Furniture investment and Office Support investment:

ILEC	Furniture	Office Support
BellSouth	0.125%	0.281%
Carolina/Central	0.209%	0.576%
GTE	1.255%	2.519%

In consideration of the similarities between GTE and Carolina/Central such as both having substantial purchasing power, similar demographic characteristics, having 65.6%-GTE and 67.2%-Carolina/Central of their respective exchanges serving less than 5,000 access lines, and having 93.8%-GTE and 93.5%-Carolina/Central of their respective exchanges serving less than 20,000 access lines, the Commission believes that the Public Staff's proposal is reasonable.

CONCLUSIONS

The Commission adopts the Public Staff's recommendation in this regard. The Commission concludes that the support ratio inputs into the BCPM 3.1 for the calculation of GTE's Furniture and Office Support investment should be those proposed by Carolina/Central which are 0.209% and 0.576%, respectively.

3(f): STRUCTURE SHARING

POSITIONS OF PARTIES

BELLSOUTH: BellSouth reflected structure sharing percentages of 1% for conduit (1% paid for by carrier other than BellSouth); 0% for buried feeder; 1% for buried distribution; 63.87% for poles; 0% for anchors and guys; and 1% for manholes. Buried and underground sharing percentages are based upon BellSouth's engineers' experience and expertise.

CAROLINA/CENTRAL: Carolina/Central reflected default structure sharing percentages based on the actual experience of ILECs under such sharing arrangements of 0%-20% for conduit; 0%-15% for buried feeder; 0%-20% for buried distribution; 50% for poles; 0% for anchors and guys; and 0%-25% for manholes. Carolina/Central used default inputs based on the actual experience of the ILECs to give a realistic estimate of the cost savings that can be realized through such sharing arrangements.

GTE: GTE reflected a structure sharing percentage of 44% for aerial support structures; 7% for buried feeder and distribution cable; and 0% for conduit based on the Company's actual operating experience as well as the expertise of its engineers.

AT&T: AT&T reflected a structure sharing percentage of 67% for buried distribution cable; 60% for buried feeder cable; 67% for conduit; 50%-75% for poles; and 50%-75% for guys and anchors. AT&T argued that increased competitive pressures will increase ILEC structure sharing and that the structure sharing assumptions made by the ILECs do not reflect a forward-looking network.

MCI: MCI did not address this issue with specificity in its Proposed Order. MCI co-sponsored the HM 5.0 with AT&T.

NCCTA: The NCCTA recommended that the Commission assign a user input value for structure sharing in each model that is more representative of forward-looking conditions. The BCPM sponsors' absolute reliance on current practice is not reflective of a forward-looking and efficient cost analysis. However, it is doubtful whether the degree of structure sharing envisioned by the HM sponsors will materialize immediately or even in the near future.

ATTORNEY GENERAL: The Attorney General recommended in his Brief that the Commission adopt structure sharing amounts that fall midway within the range bounded by the testimony of the two sides (ILECs and AT&T/MCI).

PUBLIC STAFF: The Public Staff did not address this issue with specificity in its Proposed Order.

DISCUSSION

Structure sharing refers to the allocation of costs from the ILEC to other providers that may share space on the ILEC's structures including poles, conduits, cable, and manholes. The parties presented various percentages for structure sharing: the ILECs with lower structure sharing percentages and AT&T/MCI with higher structure sharing percentages.

BellSouth witness Caldwell stated in rebuttal testimony that BellSouth's structure sharing projections included in the BCPM 3.1 reflect actual arrangements between BellSouth and other parties in North Carolina. Witness Caldwell asserted that BellSouth shares structures when possible and that BellSouth's inputs for structure sharing are appropriate.

According to BellSouth's Proposed Order, AT&T (HM 5.0) assumes that an ILEC will share buried support structures for distribution cable with other companies one-third of the time. BellSouth asserted that the sharing factor was developed by the Hatfield input team, and that the input team's validation process did not reveal a single telephone company in North America that had achieved a 33% sharing factor.

During the hearing, on redirect, BellSouth witnesses Madan, Dirmeier, and Newton testified that the structure sharing percentages used in the HM were not national inputs but "simply an assertion". The BellSouth witnesses also stated that the HM assertion has no backup.

Carolina/Central stated, in their Proposed Order, that the actual experience of the ILECs under such sharing arrangements has been factored into the BCPM 3.1 to provide a realistic estimate of the cost savings that can be realized through such sharing arrangements. Carolina/Central criticized the HM which uses projected structure sharing

The Commission believes that the structure sharing percentages recommended by both the ILECs and AT&T/MCI are unreasonable. The Commission finds that the ILECs' position concerning the scorched node approach does not fully support the structure sharing percentages advocated by the ILECs. Additionally, the percentages reflected by AT&T/MCI are certainly too aggressive and have not been achieved by any telecommunications carrier in North America. Therefore, the Commission believes that it would be reasonable and appropriate to reflect structure sharing percentages that fall between the percentages advocated by the ILECs and AT&T/MCI to capture a realistic, future-looking amount of structure sharing.

CONCLUSIONS

The Commission concludes that the ILECs should be required to input structure sharing percentages into their cost models that fall midway between their proposed percentages and the percentages proposed by AT&T/MCI in the HM 5.0 Model.

3(q): STRUCTURE MIX

POSITIONS OF PARTIES

BELLSOUTH: BellSouth argued in its Proposed Order and Brief that the HM 5.0 does not place telephone poles as a part of the model's aerial structure in the two highest density zones.

CAROLINA/CENTRAL: Carolina/Central used structure mix percentages based on an analysis of existing Carolina/Central facilities in North Carolina. However, this issue was not addressed with specificity in their Proposed Order or Brief.

GTE: GTE reflected its actual plant mix in North Carolina.

AT&T: AT&T reflected structure mix percentages based on the density zone (lines per square mile), soil conditions, and size and number of cables required.

MCI: MCI did not address this issue with specificity in its Proposed Order. MCI co-sponsored the HM 5.0 with AT&T.

NCCTA: The NCCTA did not address this issue with specificity in its Brief.

ATTORNEY GENERAL: The Attorney General did not address this issue with specificity in his Brief.

PUBLIC STAFF: The Public Staff did not address this issue with specificity in its Proposed Order.

DISCUSSION

Structure mix represents the percentage of aerial, buried, and underground cable for distribution cable, cooper feeder cable, and fiber feeder cable. The ILECs used structure mix percentages that are based on the Companies' experience of operating in North Carolina. AT&T and MCI used the HM inputs that are based on the recommendation of the Hatfield Inputs Group.

Structure mix is input based on distribution plant, copper plant, and fiber plant. Additionally, structure mix is input based on soil conditions (normal, soft, or hard) and density of area.

During cross-examination by AT&T, BellSouth witnesses Madan, Dirmeier, and Newton confirmed that BellSouth's structure mix percentages are based on the BellSouth-North Carolina loop sample reconfigured to reflect forward-looking technology in a scorched-node approach.

Based on the evidence of record in this proceeding, the Commission finds the structure mix percentages used by the ILECs reasonable and appropriate.

CONCLUSIONS

The Commission concludes that the structure mix percentages used by BellSouth, Carolina/Central, and GTE are reasonable and appropriate for use in this proceeding.

3(h): FILL FACTORS / DENSITY CABLE SIZING FACTORS

POSITIONS OF PARTIES

BELLSOUTH: BellSouth utilized fill factors based on projected actual utilization rates specific to BellSouth facilities in North Carolina. No BellSouth data is available to provide varying fill factors by density zone. BellSouth used cable sizing factors in BCPM to produce actual fill levels approximately equal to BellSouth's projected fill levels for copper cable. These factors are used to determine the appropriate cable sizes to be deployed.

CAROLINA/CENTRAL: Carolina/Central reflected fill factors that are based on projected utilization rates specific for Carolina/Central's operations in North Carolina. The projected rates used reflect the anticipated growth rate of the area served, the spare capacity necessary to comply with the service obligations mandated by the Commission, and the economic placement and sizing of cable facilities.

GTE: Cost studies should reflect an average level of utilization for distribution and feeder for the specific company conducting the study. GTE's feeder and distribution-cable fill factors of 65% and 40%, respectively, represent the upper bounds for average fills for these types of investment.

AT&T: AT&T recommended that the HM default inputs be used. AT&T stated that the cables sized by the fill factors in HM 5.0 have sufficient spare capacity to accommodate reasonable administration, maintenance, defective pair, and customer churn requirements.

MCI: MCI did not address this issue with specificity in its Proposed Order. MCI recommended that the HM default inputs be used.

NCCTA: The NCCTA stated that the appropriate fill or cable sizing factors used by the Commission in the cost proxy model should balance current and expected demand levels for the supported universal services as well as accommodate the requirements for administrative and modular related spare capacity over the economic life of the feeder and distribution facilities.

ATTORNEY GENERAL: The Attorney General stated that the costs of some excess plant is needed, but in this instance, input values for distribution plant utilization, which are closer to the HM inputs than the GTE or BellSouth inputs, may be appropriate inputs to use.

PUBLIC STAFF: The Public Staff stated that there was a significant difference between GTE's cable-sizing factors and those of BellSouth and Carolina/Central, especially with regard to distribution. The Public Staff recommended that the appropriate cable sizing factors for GTE should be 69% for feeder and 65% for distribution.

DISCUSSION

BellSouth witness Caldwell testified that in developing the cost of the network, BCPM requires a cable sizing factor which, along with standard cable sizes and number of distribution pairs per housing unit [Part No. 3(i)] determines cable requirements. BellSouth used North Carolina specific cable sizing factors consistent with BellSouth engineering guidelines to determine cable sizes. BellSouth's inputs for cable sizing factors are designed to produce an actual utilization equal to BellSouth's projection of actual fill, based on experience over time, for North Carolina. BellSouth argued that its projections of actual fill are the appropriate utilization levels which should be used to determine universal service costs since BellSouth's utilization levels represent a realistic view of efficient utilization of telephone plant.

Average fill rates must be considered in order to ensure full recovery of the costs of cable, including spare. BellSouth stated that its cable fill percentages have not changed significantly in the past and are not projected to change in the future. Therefore, one would expect forward-looking cable fill percentages to be maintained at the same level as current fill percentages.

Carolina/Central reflected fill factors that are based on projected utilization rates specific for Carolina/Central operations in North Carolina. The projected rates used reflect the anticipated growth rate of the area served, the spare capacity necessary to comply with the service obligations mandated by the Commission, and the economic placement and sizing of cable facilities.

GTE reflected fill factors that are based on an average level of utilization for distribution and feeder cable. GTE used feeder and distribution cable sizing factors that represented the upper bounds for average fills for these types of investment.

AT&T and MCI recommended that the HM default inputs be used. AT&T stated that the cables sized by the fill factors in HM 5.0 have sufficient spare capacity to accommodate reasonable administration, maintenance, defective pair, and customer churn requirements.

AT&T argued that the BCPM proponents are using actual or average utilization which is based on the inefficiencies of the embedded network and backward looking engineering guidelines. It is AT&T's opinion that the BCPM, by using actual cable utilization as the cable sizing factor, grossly overstates cable sizing requirements. AT&T stated that BellSouth's fill factors are inflated, for example, by its use of 25-pair distribution cable, regardless of the number of customers served using those pairs, although 6, 12, and 18-pair cable sizes are available. Additionally, AT&T stated that GTE has incorrectly utilized its average distribution utilization as the fill factor in BCPM.

On cross-examination by AT&T, BellSouth witness Caldwell testified that the smallest cable size BellSouth deploys is a 25-pair cable which is related to "inventorying and just having the facilities there". She also stated that the cost of cable as you go from 18 to 25-pair is not significant.

The Attorney General observed that while it is true that a well-managed telecommunications company will install excess cable in the ground to save costs when new customers are added later, it is equally true that forward-looking economic cost studies must use reasonable assumptions when calculating the costs for universal service support. The Attorney General agreed that the costs of some excess plant or spare capacity is certainly needed in a FLEC study to reflect the need for maintenance and repair of distribution plant. However, the Attorney General stated that in this instance,

input values for distribution plant utilization which are closer to the HM inputs than the GTE or BellSouth inputs may be the appropriate inputs to use.

The NCCTA stated that the appropriate fill or cable sizing factors used by the Commission in the cost proxy model should balance current and expected demand levels for the supported universal services as well as accommodate the requirements for administrative and modular related spare capacity over the economic life of the feeder and distribution facilities.

The cable sizing factors used in the BCPM are derived to produce the utilization ratios that the ILECs currently experience and believe are reasonable on a forward-looking basis. The following table shows the ILECs' cable sizing factor inputs along with the BCPM default values and the HM default values:

ILEC / MODEL	Feeder	Distribution
BellSouth	73.1%	66.7%
Carolina/Central	69%	85%
GTE	65%	40%
BCPM Default (based on density zone)	75% - 85%	40% - 80%
HM Default (based on density zone)	65% - 80%	50% - 75%

All three ILECs represented to the Commission that their inputs are correct. In its Proposed Order, the Public Staff stated that the record contains no justification, however, for the significant difference between GTE's cable sizing factors and those of the others. Concluding that GTE's factors should be adjusted upward to more reasonable levels, the Public Staff determined that GTE's feeder cable sizing factor should be comparable to Carolina/Central's, given the relative densities of their service territories, and that GTE's cable sizing factor for distribution should be somewhat lower than its factor for feeder. (Carolina/Central's cable sizing factor for distribution, while higher, is near the upper end of the default range.) The Public Staff recommended that the appropriate cable sizing factors for GTE should be 69% for feeder and 65% for distribution.

Considering the relative densities of GTE's and Carolina/Central's service territories and the range of cable sizing factors for feeder and distribution cable, the Commission believes that the Public Staff's proposal is reasonable.

CONCLUSIONS

The Commission adopts the Public Staff's recommendation in this regard. The Commission concludes that the appropriate cable sizing factors for GTE are 69% for feeder and 65% for distribution.

3(i): DISTRIBUTION PAIRS PER RESIDENTIAL HOUSING UNIT

POSITIONS OF PARTIES

BELLSOUTH: BellSouth used a factor of 1.6 in its FLEC study filed in this proceeding.

CAROLINA/CENTRAL: Carolina/Central used the BCPM default value of 2.0 pairs per housing unit.

GTE: GTE used the BCPM default value of 2.0 pairs per housing unit.

AT&T: AT&T recommended that the BCPM 3.1 input value for distribution pairs per residential housing unit be reduced to conform to BellSouth's policy based on 1.4 to 1.6 pairs per house or living unit.

MCI: MCI did not address this issue with specificity in its Proposed Order.

NCCTA: The NCCTA did not address this issue with specificity in its Brief.

ATTORNEY GENERAL: The Attorney General did not address this issue with specificity in his Brief.

PUBLIC STAFF: The Public Staff recommended that an input value higher than 1.4 is not justified for residential locations.

DISCUSSION

The model input value for average number of distribution pairs per residential housing unit affects the engineering and sizing of outside cable plant to connect subscribers to wire center switching equipment. AT&T witness Wells testified that BellSouth currently designs its distribution plant based on 1.4 to 1.6 pairs per house or living unit and has used a factor of 1.6 in the study filed in this proceeding. Witness Wells recommended that the BCPM 3.1 input value for distribution pairs per residential housing unit be reduced to conform to BellSouth's policy. He also recommended that Carolina/Central and GTE, both of which used the BCPM default value of 2.0 pairs per housing unit in their studies, make a commensurate reduction.

The Commission agrees with the position taken by the Public Staff in its Proposed Order that no explanation can be found in the record for the differences between the input values used by the ILECs in their studies. Calculations based on BCPM summary report data show the ratios of the number of residential lines in service to the total number of households served were 1.02 for Central, 1.09 for Carolina, and 1.12 for GTE and

BellSouth, well below the proposed 1.6 to 2.0 factors. In light of these ratios, the Commission concurs with the Public Staff that a factor of 1.4 appears to be entirely reasonable for determining the forward-looking costs of all of the ILECs. Furthermore, it is worth remembering that the BCPM models a network to serve all housing units whether or not they currently have telephone service. Applying a 1.4 factor to 100% of all housing units when statewide penetration rates are around 93% results in an effective factor of 1.5. Even if penetration rates improve to 97% with the promotion of Lifeline and Link-Up programs, the effective factor would be 1.44.

CONCLUSIONS

The Commission concludes that an input value higher than 1.4 is not justified for residential locations and that BellSouth, GTE, and Carolina/Central should adjust this input value accordingly in each of their respective studies.

3(j): SWITCHING

POSITIONS OF PARTIES

BELLSOUTH: BellSouth did not address this issue with specificity in its Proposed Order or Brief. BellSouth supports the BCPM and used North Carolina-specific switch costs.

CAROLINA/CENTRAL: Carolina/Central did not address this issue with specificity in their Proposed Order or Brief. Carolina/Central support the BCPM and used North Carolina-specific switch costs.

GTE: GTE did not address this issue with specificity in its Proposed Order or Brief. GTE used the BCPM default inputs for switch costs.

AT&T: AT&T did not address this issue with specificity in its Proposed Order or Brief.

MCI: MCI did not address this issue with specificity in its Proposed Order.

NCCTA: The NCCTA did not address this issue with specificity in its Brief.

ATTORNEY GENERAL: The Attorney General did not address this issue with specificity in his Brief.

PUBLIC STAFF: The Public Staff recommended that Carolina/Central's proposed inputs to the Switching Discount Factor Table should be used by GTE as its inputs to the BCPM 3.1, rather than the default values used by GTE. Additionally, for switch related

investments, the Public Staff recommended that Carolina/Central's proposed inputs for land loading, building loading, and the common equipment/power factors should be used by GTE, rather than the default values.

DISCUSSION

GTE used the BCPM 3.0 default values as the inputs to the Switching Discount Factor Table used in calculating the level of switching investment needed to provide universal service. A comparison of the default values to the service area specific values used by Carolina/Central reveals that the default percentages are lower. The discount percentages should be representative of the actual vendor discounts applied when switching equipment is purchased by GTE. Because of certain similarities, the Public Staff believes that GTE should be able to purchase switching equipment at discounts comparable to those received by Carolina/Central. Therefore, the Public Staff concluded that Carolina/Central's proposed inputs to the Switching Discount Factor Table should be used by GTE as its inputs to the BCPM 3.1.

GTE also proposed the BCPM 3.0 default values as the inputs for determining additional switch related investments. The Public Staff also recommended that GTE should use the inputs developed by Carolina/Central for land loading, building loading, and the common equipment/power factor.

The ILECs' Switching Discount Factor Tables for switch costs were provided by BellSouth and Carolina/Central as proprietary information. Accordingly, the switching discount factors are not shown in this Order.

The following table shows the ILECs' inputs for land loading, building loading, and the common equipment/power factor inputs for determining additional switch related investments:

ILEC	LAND LOADING	BUILDING LOADING	COMMON EQUIP./ POWER FACTOR
BellSouth	0.0119	0.1607	0.0874
Carolina/Central	0.0128	0.1479	0.0476
GTE	0.0117	0.0738	0.0682

In consideration of the similarities between GTE and Carolina/Central, such as both having substantial purchasing power, similar demographic characteristics, having 65.6%-GTE and 67.2%-Carolina/Central of their respective exchanges serving less than 5,000 access lines, and having 93.8%-GTE and 93.5%-Carolina/Central of their respective exchanges serving less than 20,000 access lines, and considering that GTE used default

values rather than developing North Carolina-specific inputs in this regard. the Commission believes that the Public Staff's proposal is reasonable.

CONCLUSIONS

The Commission adopts the Public Staff's recommendation in this regard. The Commission concludes that Carolina/Central's proposed inputs to the Switching Discount Factor Table should be used by GTE as its inputs to the BCPM 3.1 and that GTE should use the inputs developed by Carolina/Central of 0.0128 for land loading, 0.1479 for building loading, and 0.0476 for the common equipment/power factor.

3(k): DEPRECIATION

POSITIONS OF PARTIES

BELLSOUTH: BellSouth reflected estimated lives and salvage values that represent BellSouth's expected economic lives for newly placed plant, instead of FCC prescribed lives. Lives were last prescribed by the FCC for North Carolina in 1995 and are much too long, particularly for technology-sensitive accounts.

CAROLINA/CENTRAL: Carolina/Central stated that the depreciation lives and salvage estimates prescribed by the FCC for embedded assets deployed in a monopoly environment are inappropriate for a FLEC study. Carolina/Central reflected the economic life for some network assets such as cable, switching equipment, and conduit taken from estimates developed by Technology Futures, Inc. (TFI). Where the projected life approved by the North Carolina Utilities Commission was within the range projected by TFI, the life estimate authorized by the North Carolina Utilities Commission was used.

GTE: GTE proposed the use of GTE's economic depreciation lives as model inputs. These lives reflect the physical life of the associated assets, as well as the changes in market value due to changing demand conditions and technology and are the same lives used on its financial books.

AT&T: AT&T recommended that the Commission find that the projected lives most recently prescribed by the FCC for BellSouth North Carolina and GTE North Carolina are the most realistic, specific estimates of economic lives. Further, AT&T recommended that the Commission find that the ILECs' book lives are inappropriate for use in calculating universal service costs.

MCI: MCI reflected the lives and salvage values prescribed by the FCC for BellSouth-North Carolina in 1995 and GTE-North Carolina in 1996 and nationwide averages of FCC prescriptions for Carolina/Central.

NCCTA: The NCCTA recommended that the Commission reject BellSouth's, Carolina/Central's, and GTE's proposal to apply economic lives outside of the FCC's prescribed range and substitute in their place economic lives and net salvage percentages within the FCC-authorized range.

ATTORNEY GENERAL: The Attorney General took no position on what depreciation inputs are appropriate to adopt in this proceeding. The Attorney General suggested that if the FCC defaults are used for cost of capital, then the FCC defaults should also be used for depreciation.

PUBLIC STAFF: The Public Staff recommended that the ILECs be allowed to select any inputs that are within the FCC's prescribed range for economic lives and salvage values. For buildings, in which no range exists, the ILECs may use their proposed inputs.

DISCUSSION

Paragraph 250 of the FCC's USO outlines the ten criteria a FLEC study must meet in order to be used to determine the cost of universal service for a particular state. Criterion No. 5 states:

> "Economic lives and future net salvage percentages used in calculating depreciation expense must be within the FCC-authorized range...We intend shortly to issue a notice of proposed rule making to further examine the Commission's depreciation rules."

BellSouth witness Caldwell stated in direct testimony that there appears to be a conflict in the FCC guidelines. Witness Caldwell stated that the FCC's USO requires studies to be based on forward-looking economic costs, however, the FCC-authorized range of lives are clearly not forward-looking economic lives.

However, BellSouth witness Caldwell stated in rebuttal testimony that BellSouth did not file the supporting depreciation studies to document its recommended projected lives and future net salvage values.

Carolina/Central stated, in their Proposed Order, that the North Carolina Utilities Commission has traditionally allowed depreciation rates higher than those authorized by the FCC. Carolina/Central argued that because of this, North Carolina enjoys one of the most modern telecommunications infrastructures anywhere in the nation. The Companies' stated that they have included in the recommended BCPM cost study the life and salvage estimates for network assets that reflect the greater technological obsolescence that will

result in the future from an increasingly competitive market. The BCPM, the Companies' argued, incorporates a depreciation policy that encourages investment in new technology.

GTE asserted in its summary of input differences that the FCC's depreciation lives and net salvage values should not be considered as they are not forward-looking, because they are based on Orders by the FCC issued prior to the passage of the Telecommunications Act.

AT&T, in its Proposed Order, argued that the FCC rates are realistic and unbiased toward any party to the proceeding. AT&T stated that the FCC has been tracking technology changes since the early 1980's, and the collective experience of the FCC in determining appropriate rates is well-established. AT&T also stated, in its Proposed Order, that a comparison of the FCC-prescribed North Carolina lives to the historic lives that BellSouth and GTE attached to their testimony confirms that the FCC has shortened lives considerably to reflect rapidly changing technology. AT&T stated that BellSouth used lives based on the "book lives" BellSouth utilizes for public reporting purposes which are based on Generally Accepted Accounting Principles (GAAP). GAAP, AT&T argued, requires ILECs to err on the side of shorter lives to eliminate any possibility that BellSouth could overstate the value of its assets to stockholders.

The Attorney General recommended that if the FCC's default depreciation rates are used, then the FCC's default for cost of capital should also be used.

Public Staff witness Garrison presented a schedule in the record of evidence in this proceeding which outlines the projected lives and future net salvage values supported by BellSouth, GTE, and Carolina/Central versus the projected lives and future net salvage values prescribed by the FCC (Exhibit No. JTG-5 - Revised, Pages 1-2 as attached to revised direct testimony of witness Garrison). In its Proposed Order, the Public Staff advocated that the Commission has no choice but to require depreciation rate inputs that are within the FCC's range for purposes of the FLEC studies that will be submitted to the FCC.

Based on the FCC's criterion, in order for any FLEC study submitted by the North Carolina Utilities Commission to be adopted by the FCC, the economic lives and salvage values must be within the FCC-authorized range. Therefore, based on the USO, the rates proposed by the ILECs must be revised to fall within the FCC-authorized range.

CONCLUSIONS

The Commission concludes that it is appropriate to require the ILECs to select economic lives and future net salvage percentages that are within the FCC-authorized range in order to comply with FCC Criterion No. 5 of the FCC's prescribed ten, cost-study

CONCLUSIONS

The Commission has previously concluded that the company-specific inputs submitted by the ILECs should be used where they are forward-looking and reasonable. This appears to be the case for BellSouth and Carolina/Central with respect to the costs considered in this issue. The Public Staff has not suggested adjustments for BellSouth and Carolina/Central, and the Commission does not find persuasive witness Lerma's testimony that BellSouth should revert to its previous methodology for calculating operating costs attributable to basic local service. The testimony of BellSouth witness Caldwell is more credible on this issue.

3(m): TAX RATES

POSITIONS OF PARTIES

BELLSOUTH: BellSouth reflected the following tax rates: federal income tax rate of 35%; state income tax rate of 7.5% (updated from 7.75%); and gross receipts tax rate of 3.19%. Tax rates were not discussed with specificity in BellSouth's Proposed Order or Brief.

CAROLINA/CENTRAL: Carolina/Central reflected the following tax rates: federal income tax rate of 35%; and state income tax rate of 6.9% (updated from 7.5%). Tax rates were not discussed with specificity in Carolina/Central's Proposed Order or Brief.

GTE: GTE reflected the following tax rates: federal income tax rate of 35%; and state income tax rate of 7.5% (updated from 7.75%). Tax rates were not discussed with specificity in GTE's Proposed Order or Brief.

AT&T: AT&T reflected the following tax rates: combined federal income tax rate and state income tax rate of 39.25%; and gross receipts and ad valorem rate of 5%. Tax rates were not discussed with specificity in AT&T's Proposed Order or Brief.

MCI: MCI did not address this issue with specificity in its Proposed Order. MCI co-sponsored the HM 5.0 with AT&T.

NCCTA: The NCCTA did not address this issue with specificity in its Brief.

ATTORNEY GENERAL: The Attorney General did not address this issue with specificity in his Brief.

PUBLIC STAFF: The Public Staff recommended the following tax rates: federal income tax rate of 35%; state income tax rate of 6.90%; gross receipts tax rate of 3.22%; and regulatory fee rate of 0.09%.

DISCUSSION

BellSouth reflected a state income tax rate of 7.5% (compared to the rate of 7.75% originally used) in its revised cost study filed with its Proposed Order and Brief. BellSouth witness Caldwell stated in rebuttal testimony that BellSouth does not agree that the appropriate state income tax factor to be used is 6.9% as recommended by Public Staff witness Garrison. Witness Caldwell stated that the 6.9% rate is not scheduled to be effective until the year 2000, and the BellSouth cost study reflects state income tax cost expectations for the period 1997-1999.

In rebuttal testimony, BellSouth witness Caldwell stated that BellSouth had used a composite tax factor for gross receipts of 3.19% that includes both the gross receipts tax rate of 3.22% and a regulatory fee rate of 0.085%. Witness Caldwell stated that BellSouth's 3.19% factor results from combining actual gross receipts tax paid and the regulatory fee applied to the appropriate percentage of revenue.

In revised testimony, Public Staff witness Garrison stated that the North Carolina corporate income tax rate is set at 7.25% for the 1998 calendar year; however, that the rate will decrease to 6.9% for the year beginning January 1, 2000. Witness Garrison also testified that the federal corporate income tax rate is currently set at a maximum of 35% for taxable income exceeding $18,333,333. In its Proposed Order, the Public Staff recommended the use of the current gross receipts tax rate of 3.22% for telecommunications companies and the current regulatory fee rate of 0.09%.

The Commission notes that funding from the universal service fund being decided in this case will not begin until January 1, 1999, which is only one year prior to the 6.9% state income tax rate becoming effective. Additionally, the Commission believes that it is reasonable to include in a forward-looking cost study the known state income tax rate that will be applied in the year 2000 and possibly forward.

Current state statute reflects the following state income tax rates: 1997 - 7.5%; 1998 - 7.25%; 1999 - 7.00%; and 2000 - 6.90%.

The Commission further notes that the current gross receipts tax rate for telecommunications companies in North Carolina is 3.22%. Additionally, the Commission notes that the current regulatory fee rate of 0.09% became effective on July 1, 1997, and will be effective until at least June 30, 1999. Finally, the Commission notes that no party disputes the use of the 35% federal income tax rate.

CONCLUSIONS

The Commission concludes that the appropriate tax rates and regulatory fee rate to be used in the cost models are as follows: federal income tax rate of 35%; state income tax rate of 6.90%; gross receipts tax rate of 3.22%; and regulatory fee rate of 0.09%.

3(n): COST OF CAPITAL

POSITIONS OF PARTIES

BELLSOUTH: BellSouth stated that it used the FCC's recommended overall cost of capital of 11.25% but used its own capital structure components.

CAROLINA/CENTRAL: Carolina/Central stated that the FCC-authorized interstate overall rate of return of 11.25% is appropriate and was included in the model inputs.

GTE: GTE utilized a risk-adjusted cost of capital of 13.12% that is based on the weighted average cost of capital for companies included in the Standard & Poor's 500.

AT&T: AT&T requested that the Commission determine the appropriate cost of capital for ILECs in North Carolina and proposed an overall cost of capital of 9.43% for BellSouth, 9.53% for Sprint, and 9.60% for GTE.

MCI: MCI adopted the cost of capital recommendations made by AT&T.

NCCTA: The NCCTA recommended that the Commission adopt a capital structure and cost of capital for use in the universal service cost proxy model that recognizes the ILECs' network economies of scale and scope and the fact that there is no meaningful competition for basic local exchange service from facilities-based providers at this time. On a forward-looking basis, the weighted average cost of capital is likely to be closer to that endorsed in the Hatfield Model rather than the assumptions made in the BCPM.

ATTORNEY GENERAL: The Attorney General deferred to the cost of capital calculated by the Public Staff as the amount to use for the cost of capital input to the FLEC study.

PUBLIC STAFF: The Public Staff recommended that the forward-looking overall cost of capital associated with providing universal service in North Carolina is 9.94% based on a capital structure consisting of 58% common equity and 42% debt, a cost of debt of 7.38%, and a cost of common equity of 11.80%.

DISCUSSION

The FCC's Overall Rate of Return

The FCC's fourth criterion which a state-conducted study must meet in order to be approved for use in calculating federal universal service support concerns the rate of return on investment or cost of capital used in a state's FLEC study. According to Paragraph 250 of the FCC's Universal Service Order:

> (4) The rate of return must be either the authorized federal rate of return on interstate services, currently 11.25%, or the state's prescribed rate of return for intrastate services. We conclude that the current federal rate of return is a reasonable rate of return by which to determine forward looking costs. We realize that, with the passage of the 1996 Act, the level of local service competition may increase, and that this competition might increase the ILECs cost of capital. There are other factors, however, that may mitigate or offset any potential increase in the cost of capital associated with additional competition. For example, until facilities-based competition occurs, the impact of competition on the ILECs risks associated with the supported services will be minimal because the ILECs facilities will still be used by competitors using either resale or purchasing access to the ILECs unbundled network elements. In addition, the cost of debt has decreased since we last set the authorized rate of return. The reduction in the cost of borrowing caused the Common Carrier Bureau to institute a preliminary inquiry as to whether the currently authorized federal rate of return is too high, given the current marketplace cost of equity and debt. We will re-evaluate the cost of capital as needed to ensure that it accurately reflects the market situation for carriers.

The 11.25% overall rate of return was authorized by the FCC's Order in CC Docket No. 89-624, adopted on September 19, 1990, for the interstate access services of local exchange carriers. The 11.25% overall rate of return was based on the FCC's findings that the embedded cost of debt was 8.8%, the capital structure ratios consisted of 55.8% equity and 44.2% debt, and the range of reasonable estimates of the LEC interstate access cost of equity was 12.5% to 13.5%. Using these findings, the FCC calculated that a range of reasonable estimates of the overall cost of capital equaled 10.85% to 11.4%. After consideration of evidence concerning factors such as the condition and future of the telecommunications infrastructure and the state of competition in the interstate access market, the FCC concluded that an 11.25% overall rate of return was appropriate.

Evidence in this Proceeding

BellSouth and Carolina/Central witness Staihr testified that the BCPM 3.1 submitted by these parties used the prescribed federal overall cost of capital listed in the FCC's Universal Service Order of 11.25%. These parties stated that the FCC reiterated their position on rate of return in the FCC's February 27, 1998, Public Notice in which FCC Criterion No. 4 stated that "the rate of return should be either the authorized federal rate of return on interstate services, currently 11.25%, or the state's prescribed rate of return for intrastate services." BellSouth and Carolina/Central stated that since they are not rate-of-return regulated in North Carolina, these parties utilized the FCC's recommended rate of return of 11.25%.

After examining the BellSouth and the Carolina/Central FLEC studies submitted in this proceeding for compliance with the FCC's fourth criterion, Public Staff witness Garrison testified that the inputs used by BellSouth and by Carolina/Central use costs of capital and a capital structure which produce the FCC's overall prescribed interstate rate of return. However, witness Garrison pointed out that BellSouth's and Sprint's costs of capital and capital structure do not match those adopted by the FCC in FCC Docket No. 89-624. With respect to GTE's FLEC study, he testified that the costs of capital and capital structure used by GTE do not produce the FCC's prescribed rate of return, and therefore, GTE would not meet this criterion unless the Commission adopted GTE's proposed costs of capital and capital structure on an intrastate basis.

In rebuttal, BellSouth witness Caldwell testified that BellSouth's study is based on BellSouth's own forward-looking capital structure, cost of debt, and cost of equity as supported by the testimony of BellSouth witness Billingsley. She explained that while BellSouth accepts the use of the FCC's overall recommended cost of capital, BellSouth appropriately used its own capital structure components. It was her testimony that since the FCC's prescribed capital structure is at a nationwide level, it would not be appropriate for use by BellSouth in the FLEC cost study. According to workpapers filed in this docket on January 16, 1998, which show BellSouth's inputs, BellSouth used a capital structure consisting of 60% equity and 40% debt, a cost of debt of 8.0%, and a return of equity of 13.4% in the FLEC cost study which it submitted in this proceeding.

BellSouth rebuttal witness Billingsley used three approaches to determine BellSouth's cost of equity. In the first approach, he applied a quarterly Discounted Cash Flow (DCF) model, which included an adjustment to account for flotation costs, to a group of 20 comparable risk companies. A cluster analysis based on dimensions of the financial and operating risk of BellSouth was used to identify the comparable risk companies. Based on his DCF analysis, witness Billingsley determined a cost of equity of 15.23% to 15.24%. In the second approach, he used a Capital Asset Pricing Model (CAPM) applied to the same comparable group of firms. The CAPM approach indicated a cost of equity of 14.66% to 14.80%. Finally, he conducted a risk premium analysis which indicated a

cost of equity for the Standard & Poor's (S&P) 500 between 14.15% to 14.96%. From these approaches, witness Billingsley concluded that the cost of equity to BellSouth is within 14.66% to 15.24%.

BellSouth rebuttal witness Billingsley also evaluated the reasonableness of BellSouth's use of an overall cost of capital of 11.25% in its FLEC cost study using two tests. One test used BellSouth's actual capital structure at December 31, 1997, which consisted of 57.14% equity and 42.86% debt, BellSouth's embedded cost of debt of 6.36%, and an overall cost of capital of 11.25%. Using these parameters, he calculated an implied cost of equity equal to 14.91%. The other test used an equity ratio of 60% and a debt ratio of 40%, his own estimate of BellSouth's forward-looking cost of debt under current market conditions which equaled 6.90%, and the 11.25% overall cost of capital. Using this second set of parameters, witness Billingsley calculated an implied cost of equity equal to 14.15%. Since the 14.91% and 14.15% implied costs of equity calculated from these two tests were each below or within the cost of equity range of 14.66% to 15.24% as determined using the three approaches discussed above, witness Billingsley concluded that BellSouth's use of an 11.25% overall cost of capital was reasonable.

Carolina/Central witness Potter testified that the FCC authorized interstate overall rate of return of 11.25% was included in its FLEC study model. According to workpapers filed in this docket by Carolina/Central on January 20, 1998, which show the Carolina/Central inputs, Carolina/Central used a capital structure consisting of 62.9% equity and 37.1% debt, a cost of debt of 6.4% and a return on equity of 14.1% in the FLEC cost study which they submitted in this proceeding.

GTE witness Robinson testified that GTE used a risk-adjusted, forward-looking overall rate of return of 13.12%. He explained that a risk-adjusted rate of return is needed and that GTE's investors faced increased risk due to several factors. Such factors included: the prospect of increased competition and attendant loss of market share; the uncertainty surrounding prices for resale services and unbundled network elements; the magnitude of implementation costs and whether such costs will be recovered; the loss of geographical diversification of regulatory risk due to the simultaneity of arbitration proceedings among the states; and the possibility that prudently made historical investments will not be recovered.

In rebuttal, GTE witness Jacobson presented testimony to support the capital structure and overall weighted average cost of capital used in GTE's cost studies in this proceeding. To determine the cost of equity for GTE, witness Jacobson employed a quarterly DCF model, which included a 5% flotation cost adjustment, applied to the S&P Industrials. Based on his DCF analysis, he recommended a cost of equity for GTE of 14.68%. He also testified that the cost of debt in GTE's cost study was based on the average yield for newly-issued "A"-rated Industrial Bonds as reported in the July 1997 issue of Moody's Bond Record which equaled 7.64%. Finally, witness Jacobson

recommended a capital structure for GTE consisting of 77.82% equity and 22.18% debt. This capital structure was calculated using the average of the market-based values of equity and the book value of debt for the S&P Industrials.

AT&T and MCI witness Wood testified that these parties are requesting that the Commission make a determination regarding the appropriate cost of capital for the ILECs. According to his testimony, the Hatfield Model included the proposed intrastate cost of capital as recommended by AT&T witness Hirshleifer.

AT&T witness Hirshleifer testified on the forward-looking economic cost of capital appropriate for the provision of universal service that should be used for BellSouth, Carolina/Central, and GTE. According to his testimony, 30-year Treasury bond rates have fallen from 9.03% to 6.6% since the FCC prescribed the overall rate of return of 11.25% which implies that the cost of capital has fallen since the 11.25% was determined in 1990. To determine the overall cost of capital, witness Hirshleifer first estimated the current cost of debt for BellSouth, Carolina/Central, and GTE to be 7.06%, 7.19%, and 7.22%, respectively. These estimates were determined by calculating a weighted average cost of the yield-to-maturity of each of these company's outstanding major debt issues as listed in the S&P Bond Guide. Witness Hirshleifer then estimated the cost of equity using a three-stage DCF model applied to a screened group of telephone operating companies from the S&P Industry Survey. He also used a CAPM. Averaging the results of his DCF and CAPM estimates, witness Hirshleifer recommended that the cost of equity for BellSouth, Carolina/Central, and GTE equaled 11.02%, 11.10%, and 11.19%, respectively. Finally, witness Hirshleifer developed a capital structure by averaging the book value and market value weights of equity and debt for the group of comparable companies. This average produced a capital structure consisting of 60% equity and 40% debt. Based on his determinations of the cost of debt, cost of equity, and capital structure, witness Hirshleifer recommended an overall cost of capital of 9.43% for BellSouth, 9.53% for Carolina/Central, and 9.60% for GTE.

Public Staff witness Hinton testified that the 11.25% overall rate of return authorized by the FCC was inappropriate to use for the forward-looking cost of capital in this proceeding. According to his testimony, since the FCC adopted the 11.25% overall rate of return in 1990, yields on 30-year Treasury bonds had declined over 300 basis points, the average annual rate of inflation has fallen over 400 basis points, and investors' expectations of future inflation are currently lower than in 1990. He also testified that the allowed returns on equity for telephone companies have fallen from an average annual rate of 12.9% in 1990 to a rate of 11.6% for the nine months ended September 1997.

To determine the overall cost of capital which he recommended in this proceeding, witness Hinton first determined a forward-looking capital structure by averaging Value Line Investment Survey's projected percentages of common equity for ten publicly traded telephone companies which are primarily involved in providing local exchange